A Proposed Application Development Environment for SNS

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SNS ADEWG at APS

Challenge

Need an EPICS Application Development Environment that will effectively support a multi-lab project, SNS ---

Initial application development efforts will be carried out at five different DOE laboratories, with integration of hardware occurring in Oak Ridge over a three year period.

Objectives

I. Maintain the SNS EPICS software releases on a single CVS server, located at Oak Ridge to ***minimize the need for an integration step across five SNS sites***

II. Remain synchronized with the ANL/APS ('World') version of EPICS during SNS development and construction to ***minimize the impact of an EPICS upgrade upon application development as well as the running system***

Objectives - cont.-1

III. “Development” and “operation” areas should be decoupled, though, it is possible to test an application against the running system so that ***development does not impact on operations***

IV. Support configurable software development so that ***no software modification is needed for a configuration related change request, such as adding/deleting an existing type of power supply or BPM; loading an application onto a different IOC***

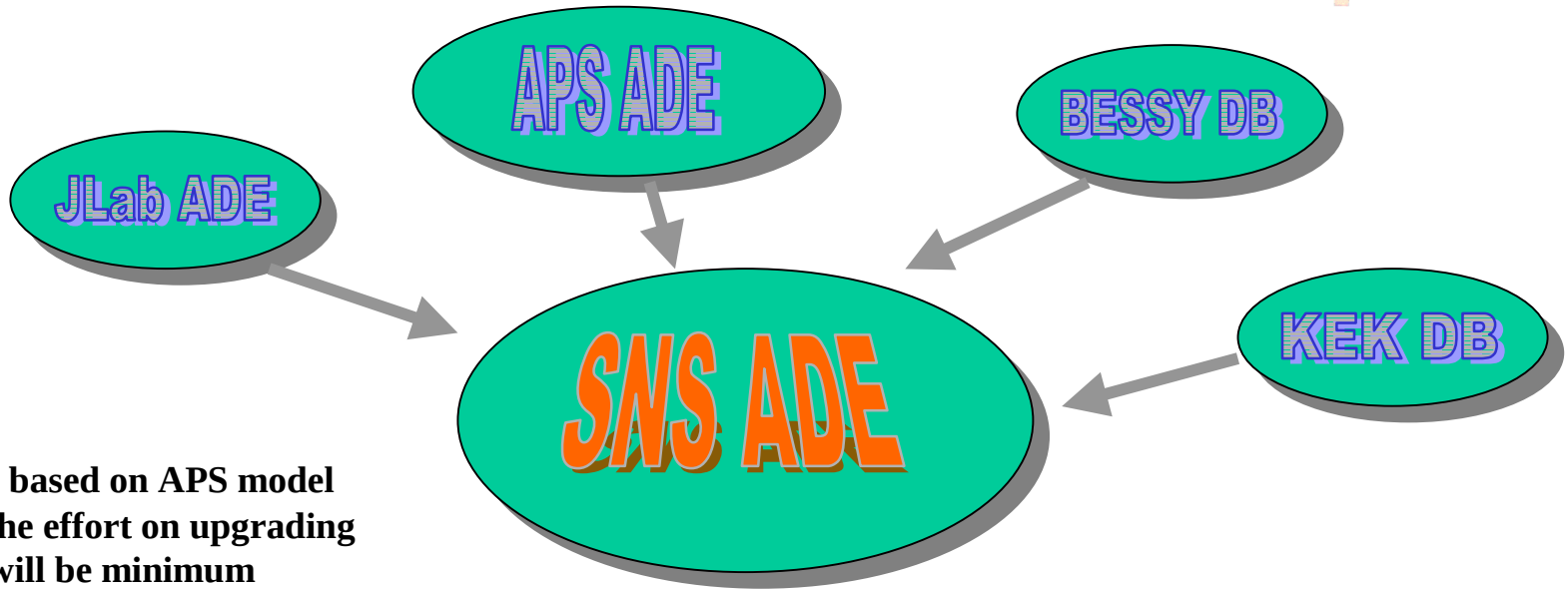
Objectives - cont. - 2

V. Easily restore all previously defined configuration information and parameters related to operations

VI. Tools and procedures to support ADE should be simple and easy to use

Proposed SNS ADE

based on several collaborating labs' ADE models



• mainly based on APS model so that the effort on upgrading EPICS will be minimum

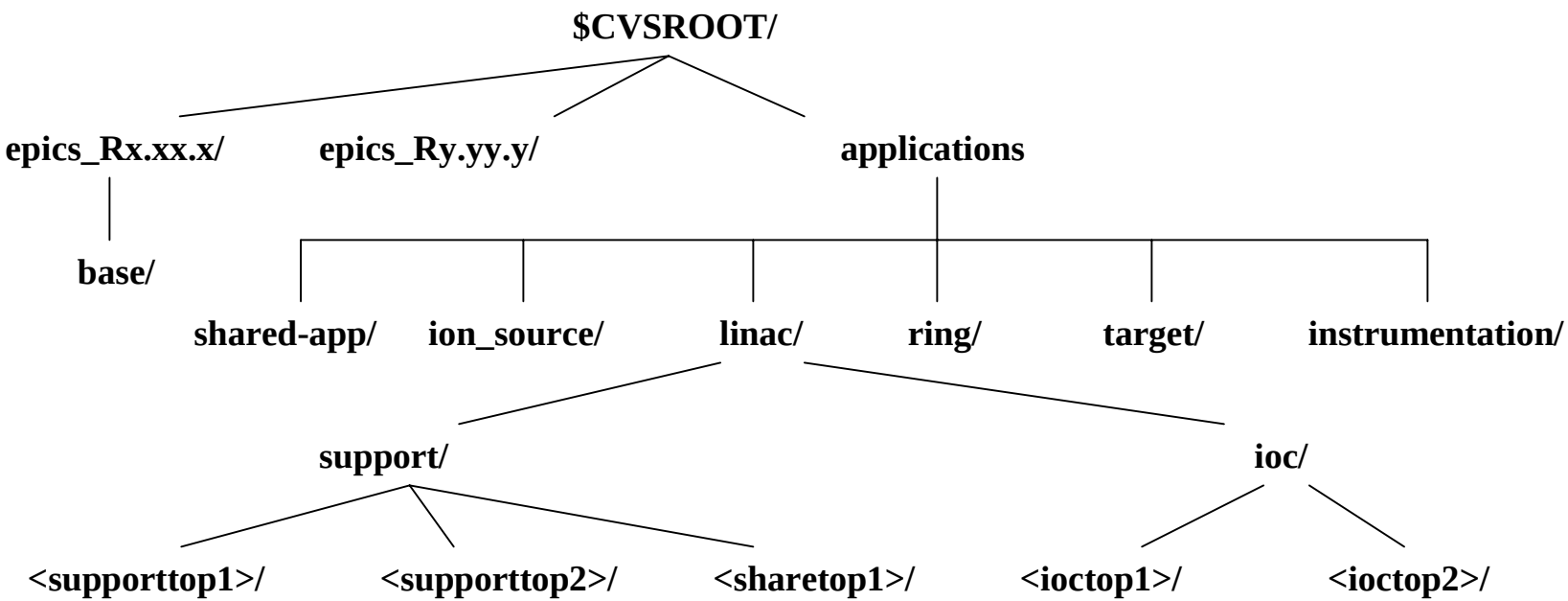
• use similar to Jlab's dvl/integration/bin-prod separated areas so that operation does not impact on operations and it is possible to test an application against the running system. (use rdist utility instead of "copy" to ensure the consistency)

• use BESSY/KEK's Oracle configuration database models to support configurable software development

• use APS' cvs controlled <ioctop> model to multi-versioning ioc configurations and use Jlab's ioc save and restore method to bring an ioc to a previous state easily

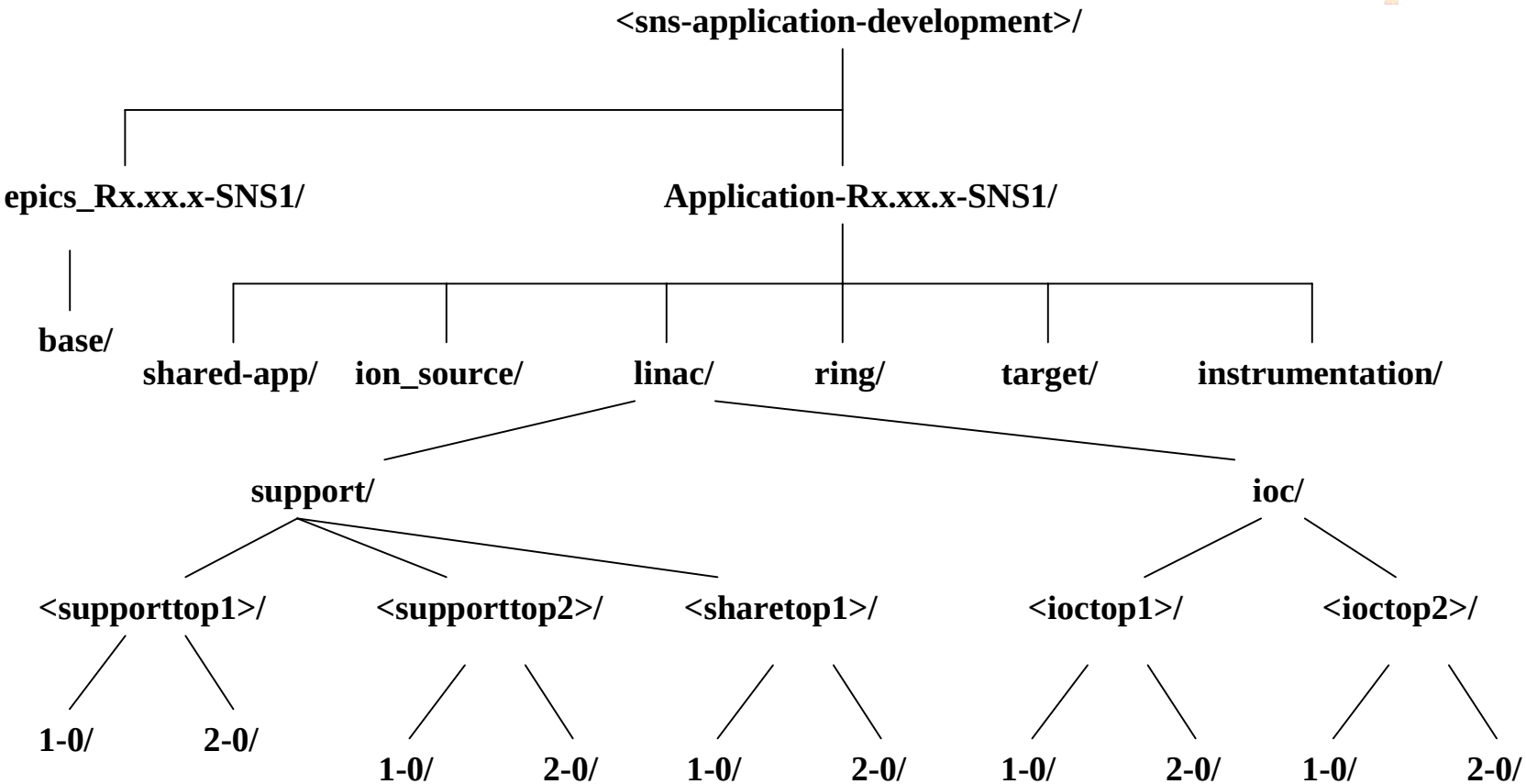
Proposed SNS ADE

one centralized CVS server



Proposed SNS ADE

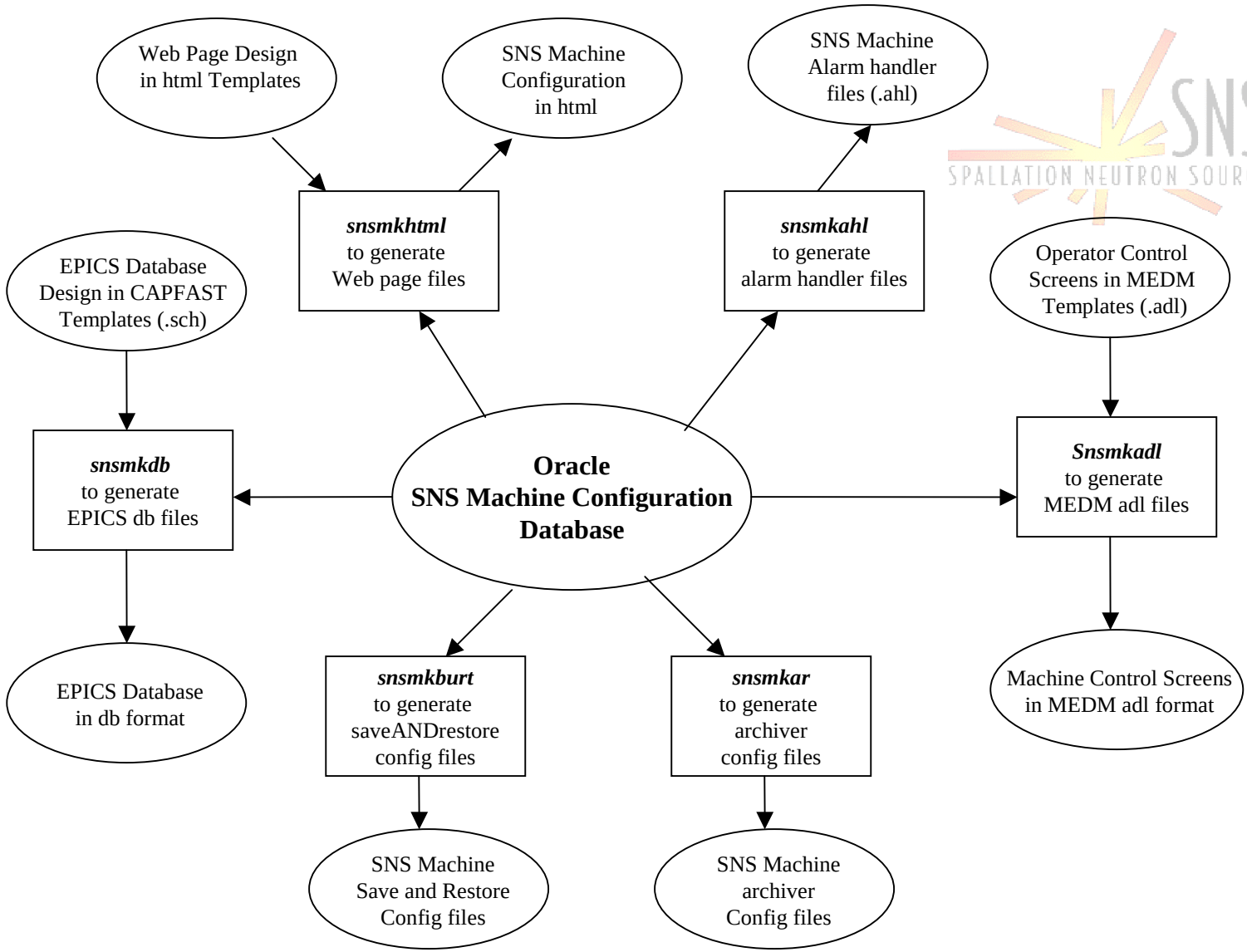
SNS EPICS Application Development Area



Proposed SNS ADE

Support Configurable Control Software Development

- Use a centralized configuration database
- Tools and Templates provided to interface with configuration database
- Change of Configuration, such as adding /deleting a device, modifying a device address, or loading an application onto a different IOC, will only require executing the proper scripts to update the software


Web Page Design in html Templates
SNS Machine Configuration in html
SNS Machine Alarm handler files (.ahl)
snsmkhtml to generate Web page files
snsmkahl to generate alarm handler files
EPICS Database Design in CAPFAST Templates (.sch)
Operator Control Screens in MEDM Templates (.adl)
snsmkdb to generate EPICS db files
Oracle SNS Machine Configuration Database
Snsmkadl to generate MEDM adl files
EPICS Database in db format
snsmkburt to generate saveANDrestore config files
snsmkar to generate archiver config files
Machine Control Screens in MEDM adl format
SNS Machine Save and Restore Config files
SNS Machine archiver Config files

Proposed SNS ADE

Issues to be discussed

- a centralized CVS server

It will be critical to maintain a reliable and good performance CVS server at ORNL for multi-site SNS application development

- integrate ADE with configuration database

There will be a local configuration database at each SNS site to support ADE during local development phase

Multi-site configuration database will be merged into one centralized database at ORNL during integration phase

- "development" and "operation" areas

There will be only "development" area at each site during local development phase and both "development" and "operation" area at ORNL during integration phase

Proposed SNS ADE

Plans

- A initial SNS ADE will be set up at ORNL in June, 99
- Need one year to develop tools to integrate ADE with configuration database for initial use *

** this will require iteration and on-going effort to develop and maintain*

- Implementation of tools to support “operation” at ORNL will begin in June, 2000